AMENDMENTS TO THE CLAIMS

1. (Currently amended) A terahertz radiation source comprising:

an emitter comprising a semiconductor material having two sides;

a pair of electrodes on one side of said semiconductor;

a pulsed light source input for illuminating said semiconductor to excite photocarriers in said semiconductor to generate terahertz radiation; and

a radiation collector to collect said terahertz radiation; and

wherein said radiation collector is disposed on the same side of said semiconductor as said electrodes and said light pulsed source impinges on the same side of said semiconductor as said electrodes.

2. (Currently amended) A terahertz radiation source comprising:

a semiconductor having opposed first and second faces;

a pair of electrodes adjacent one of said faces of said semiconductor;

a pulsed light source input for illuminating said one of said faces of said semiconductor to excite photo-carriers in said semiconductor to generate terahertz radiation; and

a radiation collector to collect said terahertz radiation; and

wherein said radiation collector is configured to collect said terahertz radiation from said one of said faces of said semiconductor without said collected radiation having passed through the other of said faces.

3. (Previously Presented) A terahertz radiation source as claimed in claim 1 wherein said radiation collector comprises a mirror.

4. (Previously Presented) A terahertz radiation source as claimed in claim 1 wherein said radiation collector comprises a lens.

5. (Previously Presented) A terahertz radiation source as claimed in claim 1 wherein said radiation collector has an aperture for illuminating said semiconductor through said radiation collector.

6. (Previously Presented) A terahertz radiation source as claimed in claim 1 further comprising a diagonal mirror disposed between said semiconductor and said radiation collector for illuminating said semiconductor.

7. (Previously Presented) A terahertz radiation source as claimed in claim 1 further comprising a cooling device in thermal contact with said emitter and disposed on an opposite side of said semiconductor material to said electrodes.

8. (Original) A terahertz radiation source as claimed in claim 7 wherein said pair of electrodes defines a gap between said electrodes, and wherein said cooling device is disposed opposite said gap.

9. (Previously Presented) A terahertz radiation source as claimed in claim 1 further comprising a pulsed laser to provide light to said pulsed light source input.

10. (Currently amended) A source of terahertz radiation comprising:

a housing, said housing holding a semiconductor, said semiconductor bearing a pair of electrodes adjacent one surface of said semiconductor;

means for directing a pulsed laser onto said electrode-bearing semiconductor to generate terahertz radiation; and

means for providing said terahertz radiation from said source; and

characterised in that said providing means is disposed to face said electrode-bearing semiconductor surface.

11. (Original) A source of terahertz radiation as claimed in claim 10 wherein said means for providing terahertz radiation comprises an aperture in said housing.

12. (Previously Presented) A source of terahertz radiation as claimed in claim 10 wherein said means for providing terahertz radiation includes a terahertz radiation focusing device.

13. (Original) A source of terahertz radiation as claimed in claim 12 wherein said means for directing said pulsed laser onto said semiconductor includes an aperture in said focussing device.

14. (Previously Presented) A source of terahertz radiation as claimed in claim 10 wherein said means for directing said pulsed laser onto said semiconductor comprises an aperture in said housing.

15. (Previously Presented) A source of terahertz radiation as claimed in claim 10 further comprising a heat transfer device for cooling said semiconductor, said heat transfer device being disposed opposite said electrode-bearing semiconductor surface.

16. (Previously Presented) A source of terahertz radiation as claimed in claim 10 for providing terahertz radiation within a portion of a frequency range of from 0.1 THz to 100 THz, more particularly within a portion of a frequency range of from 0.1 THz to 30 THz.

17. (Original) A terahertz emitter comprising:

a semiconductor having first and second electrodes adjacent a first face of said semiconductor for applying an electric field to the semiconductor, said first and second electrodes defining a gap therebetween; and

a heat transfer device mounted adjacent a second face of said semiconductor substantially opposite said first face; and

wherein at least a portion of said heat transfer device is disposed substantially opposite said gap.

18. (Original) A terahertz emitter as claimed in claim 17 wherein said heat transfer device comprises an active cooling device.

19. (Original) A terahertz emitter as claimed in claim 18 wherein said heat transfer device comprising a Peltier effect cooling device.

20. (Previously Presented) A terahertz radiation source or emitter as claimed in claim 1 wherein said semiconductor comprises a compound semiconductor.

21. (Original) A terahertz radiation source or emitter as claimed in claim 20, wherein said semiconductor comprises gallium arsenide.

22. (Original) A method of providing terahertz radiation from a photoconductive terahertz radiation source, the source comprising a semiconductor with electrodes adjacent an excitation surface of the said semiconductor, the method comprising:

applying an electric field to said electrodes;

directing a pulsed laser beam towards said excitation surface; and

using terahertz radiation emitted out of said excitation surface for providing said terahertz radiation.

23. (Original) A method of providing terahertz radiation from a photoconductive terahertz radiation source, the source comprising a semiconductor with electrodes adjacent a surface of the said semiconductor, the method comprising:

applying an electric field to said electrodes; and

directing a pulsed laser beam towards said semiconductor surface,

wherein a normal to said semiconductor surface with a component in a direction of propagation of said laser beam defines a forward direction; and wherein the method further comprises:

collecting said terahertz radiation in a reverse direction, substantially opposite to said forwards directions.